

**Notice of Allowability**

Application No.

10/073,763

Examiner

PHAN T.H. PALMER

Applicant(s)

HEHLEN ET AL

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 02/11/2002.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☒ The drawings filed on 11 February 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**EXAMINER'S AMENDMENT**

*Amend A/PRHP*

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

- In page 1 of the specification, on line 3, after "U.S. Application No."
- insert --10/073,814<sup>✓</sup>, now is U.S. Patent number 6,580,842<sup>✓</sup>--; and on line 5, after "U.S. Application No." insert --10/073,754<sup>✓</sup>, now is U.S. Patent number 6,560,387<sup>✓</sup>--.
- In the "ABSTRACT OF THE INVENTION", rewrite as following:

**ABSTRACT OF THE INVENTION** <sup>✓</sup>

--An integrated isolator array is provided having a plurality of waveguides fabricated in a planar optical substrate, each waveguide having input and output sections. An isolator subassembly is received within a transverse trench formed in the substrate between the input and output sections such that it intersects the optical paths of the waveguides. The isolator subassembly, which may consist of layers of Faraday rotator material sandwiched between layers of birefringent crystal material, permits the forward passage of light from the input sections to the output sections of the waveguides while preventing the backward passage of light from the output to the input sections. Each waveguide input section is

preferably adapted with a mode-expanding input taper to collimate light propagating through the waveguide. Similarly, each output section is preferably adapted with a mode-reducing output taper to reduce the mode size of forward-traveling light to match that of an output fiber, as well as to collimate light traveling backward within the output section--.

### **REASON FOR ALLOWANCE**

2. The following is an examiner's statement of reasons for allowance: the claims are allowable over prior art of record, because none of the references in alone or in combination discloses:

**+++ An integrated optical isolator device, comprising:**

- a planar optical substrate;
- a first waveguide formed in said optical substrate and having an input section and an output section; and
- an isolator element affixed to said optical substrate and positioned in an optical path of said first waveguide between said input section and said output section, said isolator element being configured to allow the passage of forwardly traveling light from said input section to said output section of said first waveguide while inhibiting the passage of backwardly traveling light from said output section to said input section, as discloses in claims 1, and 17.

The underline limitations is critically, since the **integrated optical Isolator device is improved**, it is significant reduce the insertion loss, and reduce the cost manufactured in large volumes using automated assembly techniques.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### **CONTACT INFORMATION**

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHAN T.H. PALMER whose telephone number is (571) 272-2354. The examiner can normally be reached on 4/4 OFF MONDAY.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RODNEY B. BOVERNICK can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PTHP  
03/06/04

*Phan T. H. Palmer*  
PHAN T. H. PALMER  
PRIMARY EXAMINER